TRANSACTIONS

OF THE

CHICAGO SURGICAL SOCIETY.

Stated Meeting, December 5, 1904.

The President, Dr. L. L. McArthur, in the Chair.

RESECTION OF THE JAW.

Dr. Albert E. Halstead exhibited two patients. The first was a male, aged fifty-five years, who about nine months ago noticed a small lump just at the angle of the right lower maxilla, which continued to increase rapidly in size, and was removed by a surgeon about a month after its appearance. It recurred shortly after the operation, and the patient was subjected to treatment by the X-ray fourteen or fifteen times without any improvement. The patient was admitted to the Cook County Hospital on the 15th of August, last year, and Dr. Halstead operated on the 1st of September, making a unilateral resection of the lower jaw, removing half of the jaw, and patient made a very quick recovery without any unfavorable symptoms. The tumor began in the submaxillary gland, was of very rapid growth, and extremely malignant. At the second operation the incision was made high up on the cheek and about three inches below the jaw; a large defect was left, which was covered by a skin flap taken from the anterior wall of the chest; this healed by primary union. There was no fistula, no great amount of deformity, and the patient can use the jaw freely.

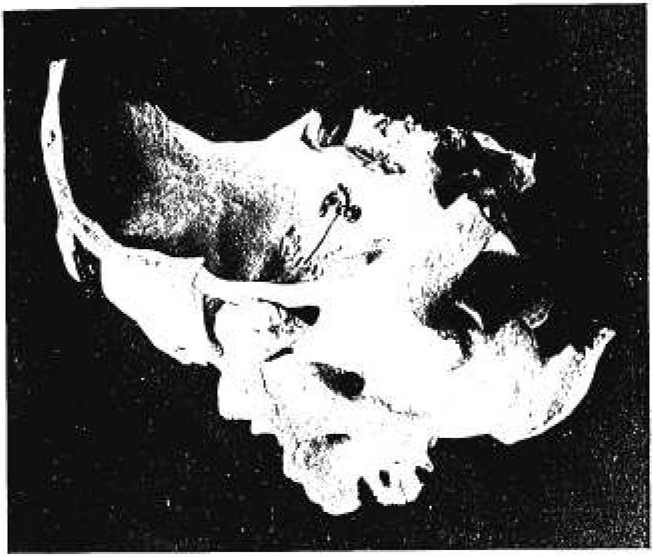
The second case was a man, sixty years of age, upon whom he operated September 17, removing the right half of the inferior maxilla. This patient came from the West. Apparently the tumor began in the mucous membrane at the junction of the alveolar process and the cheek and later involved the jaw. The tumor was removed by a surgeon in the West, but the growth recurred immediately, shortly after which patient was admitted to St. Luke's Hospital, where Dr. Halstead resected half of the jaw. This patient had a salivary fistula, from a defect in the duct of the parotid gland. The skin defect in this case was closed in the same way as in the preceding case, by taking a flap from the anterior wall of the chest. The wound healed by primary union, excepting at the opening of the fistula, where drainage was inserted.

The chief reason for bringing these patients before the Society was to get some information as regards the advisability of using a mechanical apparatus of some sort, as a splint, to take the place of half of the jaw, and to prevent the deformity which usually resulted. There had been considerable work done of this kind, one surgeon substituting aluminum, another celluloid, still another hard rubber, and another wire, the splint made to pass from the glenoid cavity to the end of the bone. It was permitted to remain after the wound healed.

Dr. Halstead mentioned a report of six cases published in the *Archives of Surgery*, 1898, by Brendt, in which a splint had been used, and in four of them the splint healed in the wound without suppuration. In one case the patient went for four years without a fistula, the operator having used a celluloid plate. In this case one-half of the inferior maxilla was resected; the mucous membrane of the mouth was closed by suturing, and skin brought up to cover over the defect. From the cuts given in the *Archives of Surgery*, there was practically no deformity. The patient's face was symmetrical, without any of the deformity that is present in the case exhibited. If such results could be accomplished, it would be worthy of trial.

Dr. Arthur Dean Bevan recalled a report he saw recently of a case of Kocher's, in which he (Kocher) had resected the central portion of the jaw, and had filled in a considerable defect by a piece of bone taken from the crest of the ilium, with quite a successful result. It looked rather difficult to believe that a large piece of bone would heal in, and yet the preliminary report gave the result in this case as a success; whether with or without periosteum he did not know. It was wired in place; it was taken from the ilium in the same patient.

Dr. Jacob Frank thought that Dr. Halstead should make



Osteoma of the frontal sinus.

an effort to close the salivary fistula, as the discharge from such a fistula, he thought, would eventually produce carcinoma. He thought it would be wise to secure healing as soon as possible, for, if the glands were cleaned out and there was no return of the disease from the old trouble, there would be a recurrence from the constant irritation of the saliva flowing over the skin.

DR. HALSTEAD said, in regard to the remarks of Dr. Bevan relative to Kocher's operation of taking a piece of bone from the ilium, etc., that this operation was performed a good many years ago by Schlatter, of Zürich, who took a bone graft from the tibia, which resembled half of the inferior maxilla, taking periosteum with it, and, having planted it, it grew successfully. The operation for filling in a defect where a piece of the central part of the jaw was removed was much simpler than to fill in a defect where half of the jaw was removed.

ACTINOMYCOSIS.

DR. ARTHUR DEAN BEVAN read a paper with the above title, for which see ANNALS OF SURGERY for May.

DR. JOHN B. MURPHY thought that an important feature brought out by Dr. Bevan was the demonstration of the lymphatic involvement. In none of the cases that came under his observation was it shown that the lymphatic glands became involved, or that the infection was transmitted through the lymphatic chain and arrested in the lymphatic glands.

Another point brought out was the enormous infiltration that occurs around a small focus of suppuration. This was one of the first things that attracted Dr. Murphy's attention in the first case he saw in 1883 (and was the first case in the human subject recognized in this country). This was a typical case of actinomycosis of the jaw in which the infiltration extended down to the neck and infiltrated the neck to the extent of an inch or more on each side. There was apparently a small fluctuating focus. When this area was opened, a number of yellow bodies escaped in the few drops of pus. These all appeared moulded. They were not round, not oval, but moulded and flattened. The specimens he saw at that time under the microscope showed a single star or radiating appearance. Drs. Belfield and Fenger saw the specimens from his first case, and also from the second case of actinomycosis of the jaw, which came under his observation a short time after the first. The infiltration described by Dr. Bevan in his case of actinomycosis of the pelvis was one of the classical conditions of this disease in the cellular tissue or peritoneum. While the disease seemed to affect bones, muscles, and destroying the tissues with which it came in contact, it elected fatty tissues, and passed by preference along the fatty tissue tracts, not involving skin, muscle completely, or bone, lifting its periosteum, attacking the periosteum, or attacking the fatty tissue close to the periosteum without attacking the bone, *i.e.*, it rarely produces a true osteitis.

The results of treatment had not been very satisfactory. So far as he could tell, his first, second, and third cases recovered; but the fourth case he saw did not recover. This was one of peritoneal actinomycosis where the micro-organisms escaped either through the stomach wall or transverse colon, to appear in the gastrocolic omentum and adjacent peritoneum. There was no perforation in the stomach wall, and none in the large intestine. There was infiltration of fatty tissue on both sides; the micro-organisms passed up into the diaphragm and beneath the surface of the liver.

Of cases of actinomycosis of the appendix he had had two,—one of his own, and another which he saw in connection with Dr. Lee. In the first the actinomycotic process was confined practically within the appendix. Recovery followed extirpation. The case he saw with Dr. Lee pursued an entirely different course. It appeared first as a peri-appendicular abscess under the abdominal wall; it was opened and drained, and the actinomyces were recognized. The process continued to burrow; the sinuses burrowed in all directions down the thigh into the pelvis, over the anterior surface of the bladder to the opposite side, up along the spine, and behind the sacrum. The patient was under observation five or six years; had been subjected to all of the varieties of treatment then in vogue, such as curettement, the application of nitrate of silver, iodide of potash, etc., and the last he heard was that the patient was still having new sinuses, showing that the element of individual resistance had as much to do with the prolongation of life as the element of treatment, and he was pleased to have Dr. Bevan bring that point out in his paper. It was his conviction that there was no specific effect produced by medication so far advised.

Dr. E. Wyllys Andrews thought we would have to revise some of our ideas in regard to the curability and frequency of actinomycosis. Dr. Bevan had had in one year more cases of actinomycosis than had often been reported by any one surgeon in that length of time, and a larger per cent. of cures.

It had been the rule probably with all surgeons to make a quick and easy diagnosis in what might be termed the typical and bad cases. Surgeons saw the wooden hardness of the mass, the absence of temperature, and opened the mass, expecting to see the yellow granules, but perhaps did not find them. Specimens were then sent to a microscopist or to the laboratory, and if the ray fungus was not found, the case was put down as not one of actinomycosis. This had been his experience with this disease. However, by being more careful personally in studying the cases, instead of trusting assistants, and making repeated examinations, he had found the mycotic threads. Furthermore, surgeons up to a short time ago looked too much for typical swellings of the jaw and neck, or protruding abscess in the maxillary region, and overlooked the remoter parts. We have been obsessed by the veterinary word "lumpy jaw."

One could not help noticing the large percentage of recoveries that had been referred to by the writer, which was quite contrary to his own experience in the rather limited number of cases he had seen during the past few years. Most of the cases he had seen had either died, or, if they were living, there was an increasing actinomycotic mass in some part of the body. He recalled one man who had a mass in his chest and who, he thought, was going to die.

As to the botanical place of this fungus, it was a parasite on the grass and grain family. It entered the organism through the mouth, except where it entered through some abrasion of the skin. This did not mean that actinomycosis always occurred in the socket of a decayed tooth, spread to the jaw, and involved the neck and so on down into the body; but it meant that some of the fragments of the fungus were adherent to matter ingested or inhaled, and gained access to the respiratory tract or to the alimentary canal. If one would analyze all the cases of actinomycosis of the alimentary canal, he would find scarcely one in the stomach. The probabilities were that the acidity of the stomach prevented the active generation of the germs there. A comparatively small number was found in the upper intestine. In nearly one-half of all cases reported the actinomycoses were found in the cæcum and in the appendix. Personally, he had not seen a case of actinomycosis like the one reported which involved the rectal region. The cases which he had seen had shown in a few instances bright yellowish, fish-egg-like bodies. Oftener they appeared dark brown. He had also seen bodies that were greenish brown, or with a distinct green cast to them, like sturgeon roe, but more minute.

Dr. M. L. Harris said the essayist had correctly stated that actinomycosis hominis was much more common than we had supposed. One reason why it had not been more frequently recognized was that we were led to look for actinomycosis about the face, neck, and mouth because the first cases were observed in these regions, and we came to look upon those places as the proper field for actinomyocotic infections. Soon we found it in connection with the intestine, and with the respiratory tract, but still looked for an infection always from the surface. It was now known that we might have hæmatogenous infections. While we know that actinomycosis must have gained entrance from the surface at some point, still, it might not have produced any local evidence of the infection at the point of entrance.

He had seen during the past year three cases of actinomycosis which apparently were hæmatogenous infections. The first was in a young lad, a country boy, who came into the hospital with a slowly developing swelling in the prevesical space. It had the characteristic hardness. He opened the mass and obtained a small amount of pus. Inoculations from the pus gave a pure culture of the staphylococcus pyogenes albus. In the first pus which was evacuated, no granules were recognized; but on the dressings a few days after the characteristic granules were at once recognized, and when submitted to the microscope demonstrated to be actinomycosis. This case progressed; the exudate spread; sinuses and fistulæ were formed about the abdominal wall into the lateral wall of the pelvis. He was operated on several times, and these tracts thoroughly cleared out, and during the operations the abdominal cavity was opened, because the speaker was suspicious all the time of a primary intestinal origin. The abscess did not originate in the appendix, nor could he find any point of the intestinal tract that was involved, so he was unable to explain how the infection reached the prevesical space except through the blood. The patient was subjected to all of the recognized treatments. Iodide of potash was given internally continuously and interruptedly. He was given X-ray treatment very thoroughly, but in spite of all treatment he progressed from bad to worse, and after a period of several months died. A peculiarity of this case was the very marked reduction of the hæmoglobin. The red cells were not reduced in number, about 4,500,000 to 5,000,000; but the hæmoglobin was reduced to a low point before he died.

The second case was in a woman (Chicago woman) who had not lived in contact with any cattle or farm-yard in any way. The disease ran a very slow course, with some pyrexia, the exact cause of which could not be recognized for some time. Finally, a swelling appeared a little to the left of the mid-line just below the costal arch. This was present when he first saw her. He thought it was an abscess; he operated on her; opened the abdomen and found the swelling was in the centre of the left lobe of the liver. He opened it up expecting to get pus, but found none. He found a mass from six to eight centimetres in its longest diameter, and four or five centimetres in its short diameter. He removed a portion of this tissue for microscopic examination and closed the wound. The section showed a mass of degenerated epithelial liver cells undergoing karyorhexis, with loss of staining properties and round-cell infiltration. From a culture he obtained a long spore producing bacillus, but was not able to identify it as any recognized pathogenic organism. She got no better; she soon developed empyema, which he opened, and then obtained actinomycotic granules. He also obtained from this pus the same spore-forming bacillus which he had obtained from the liver. This patient was put on the same line of treatment, iodide of potash, etc.; but she progressed from bad to worse, so that after several months she died.

A third case was under his care at the present time. This patient ran an indefinite history for three or four months, and then came under his observation. He saw the case with Dr. Patton. There was a distinct enlargement in the region of the liver, projecting downward and displacing the kidney anteriorly. He resected the ninth rib and opened an abscess in the right lobe of the liver. Inoculations from this pus were sterile. He got no growth. In the first pus which escaped no granules were recognized, but when he was watching the dressings a few days after he recognized at once the granules in the discharge. The microscope proved them to be actinomyces. The patient was then put on the iodide of potash. She had progressively grown worse; the disease had involved the lung; she had had an irregular pneumonia in patches, with collapse of a portion of the lung; expectoration bloody. She was still under treatment, but getting worse. This patient showed the same marked reduction of the hæmoglobin. The red cells continued up to 5,000,000, and had all the time. She had marked leucocytosis, the leucocytes varying from 18,000 to 23,000.

These three cases seemed to him to be instances of hæmatogenous infection, the organisms having been carried through the blood, with no local point of invasion, so far as could be determined. These cases showed that there was less resistance to this infection in some patients than in others. The X-ray was used in connection with the iodide and other treatment, yet all three declined; two of them died, and the third probably will before long.

Dr. A. J. Ochsner emphasized some of the points brought out by Dr. Bevan,—first, the diagnosis. He agreed with the essayist that there were a great many cases of actinomycosis in this vicinity, and most of them were not accurately diagnosed. He was interested in actinomycosis because in 1886 he was examining the sputum of a patient for tubercle bacilli and found actinomyces. His attention had been directed to the disease by Dr. Murphy's observations at that time. Dr. Belfield and Dr. Fenger at that time were greatly interested in the case. The case was reported to the Chicago Medical Society, and since that time he had been looking for cases of actinomycosis and had found many of them. He was almost never without a case. He had one at the present time. He recalled over a dozen cases in which the face and neck were involved; one affected the larynx; a number involved the abdomen; one the eighth rib; others the appendix, etc. He had had two or three cases of actinomycosis of the lungs. He had asked a number of these patients what disposition they made of their lumpy-jaw cattle, and invariably the answer was, "We try to sell them. If we can't sell them, we kill them, sell the meat, and it is peddled about and eaten by different people." He had come across cases in which he was morally certain that the infection came from eating some of this meat that had been peddled about in that manner.

With reference to treatment, he believed that surgeons should follow the methods employed by veterinary surgeons if they wished to succeed in treating actinomycosis. In late cases of actinomycosis in cattle, the veterinary surgeon had the animal killed; he never tried to cure a late case of this disease in cattle. In the early cases an effort was made to remove the entire mass by excision or by splitting it open and curetting it, followed by the administration of iodide of potash in a definite way. If the iodide of potash was given in a case of actinomycosis in the human being, in the manner in which it was administered to cattle, he had no doubt a cure could be effected as readily in man as in animals. Veterinary surgeons gave a large quantity of iodide of potash for several days in succession, and then they interrupted its use for one week, giving the spores time to develop into ray fungi, after which they repeated the iodide of potash for three days, then withdrew it for a week again, and repeated it again; in cases where the actinomycotic process was localized, the cattle would get well. This was the way in which one should treat a human being with this disease. About eight or nine years ago the speaker followed the method of giving the iodide of potash in increasing doses, but in several cases in succession there was apparently no effect upon the actinomycosis until he reached a dose of a drachm, three times a day, and then the progress of the disease began to be arrested. He remembered the first case in which he was impressed with the importance of large doses of iodide of potash very vigorously, and this was an instance in which he operated a dozen times. It was a case of actinomycosis of the scalp. The disease burrowed and burrowed, and every week or so he scraped the scalp more and more and applied every remedy he could think of, without much improvement. However, when he got up to sixty grains of iodide of potash, three times a day, the disease showed manifestations of arrest of development. The next case he had acted in exactly the same way, and since that time he had made it a rule to give ninety grains of iodide of potash in a half pint of hot milk, followed by a pint of hot water, at six in the morning, two in the afternoon, and ten at night, for as many days as the patient can bear taking it up to one week.

If the patient could bear it for a week, it was withdrawn for a week, after which it was repeated for three or four days, then withdrawn again, and repeated once a month. The reason why he repeated iodide of potash once a month was this, that in one of his fatal cases he did this for a time and the patient was apparently well; but about two years later he had a recurrence and died of the disease, there being a circumscribed encysted abscess in the lower end of the right pleural cavity.

Another case was one of actinomycosis of the neck seen six or seven years ago, in which he curetted, gave iodide of potash, etc., in the manner he had just mentioned, and the case did well for two or more months afterwards. In short, the patient seemed to be entirely well. He did not take any iodides for a year, when recurrence took place in the larynx, with œdema of the larynx. The patient returned, as he was almost suffocated. Dr. Ochsner curetted again, gave him iodide of potash in the manner described, continued it for a year, and the patient had been well for four years, to his knowledge. He heard from him last week.

DR. CARL WAGNER said, regarding the liability of the operator occasionally to infect himself during an operation for actinomycosis, that one of the pupils of Professor Sacchi, surgeon-in-chief of the Doges' Hospital of Genoa, Italy, had the misfortune of touching his nose after evacuating an abscess (actinomycotic) of a patient before disinfecting his hands, and thus infected himself. He succumbed very shortly to a fulminant actinomycosis.

The report of one of the cases of Professor Bevan in which the lymphatics were extensively involved recalled a case in his own experience in which serious complications in the form of angina Ludovici following an infection of the lower jaw and parotids, with actinomycosis, required an operation. The patient, a farmer, entered the hospital one Sunday afternoon with symptoms of choking and suffocation. An examination revealed a double swelling, one underneath the chin, very hard and persistent, and another one at the region of the parotids and lower jaw, semi-fluctuant. Both abscesses contained the typical sulphur-yellow miliary bodies of actinomycosis. Evacuation of the abscess, curettage of the cavities, swabbing with Lugol's solution, and hot compresses of boric acid yielded a very satisfactory result in this case. The patient was in the habit of chewing the ear of the corn while walking through the fields, and undoubtedly contracted his disease in this manner.

DR. L. L. MCARTHUR referred to a case the history of which he had just completed for publication in the St. Luke's Hospital Reports. It was interesting in this, that it had almost the classical course, and also showed a great variety of lesions.

The patient was a young woman, a great golfer, out of doors very much, who frequently was rebuked by her husband for plucking at hay and chewing it while playing. She developed a probable actinomycosis of the alveolar process, which required three or four months' treatment before it could be made to heal by a dentist. No actinomycotic infection of the jaw was recognized by the dentist, but only its inveterate character noted. Nine or ten months later, while playing golf in the South, she began to have pain in the right iliac region, and this pain continuing, being of a rather colicky character, on her return home she consulted Dr. Cary, her family physician. Feeling a mass there and noticing she had elevation of temperature, he sent her in to Dr. McArthur's service at St. Luke's Hospital, believing it to be a probable appendiceal abscess, although it was movable, as some of the appendiceal abscesses are when wrapped up in a mass of omentum. Dr. McArthur considered it a case of appendiceal abscess and advised operative interference. On opening the abdomen, there was found a tumor of the ileocæcal region, involving the appendix, ileum, and cæcum for a distance of four or five inches on the cæcum. This tumor in its clinical aspect, although presenting no miliary bodies on it, seemed to him to be an hypertrophic tuberculosis. On that basis, with the consent of the family physician, he made a resection of the entire ileocæcal region, implanting in the side of the hepatic flexure of the colon the resected ileum. On lifting up from the iliac fossa this mass, a few drops of pus were seen on the fascia covering the iliac muscle. This was mopped up, drainage provided for, and the wound closed. The wound healed after three weeks; the patient left the hospital, and for three months was quite well, when she began to have a cough, with high temperature, chills, and night sweats. During his absence from the city she was seen by his assistant, Dr. Hollister, who considered the case, although he was unable to demonstrate tubercle bacilli in the sputum, one of acute tubercular trouble, the patient having lived in the house of a patient who had died a few months before with tuberculosis, and many of her living things still being in the house, such as bedding, clothing, etc. On Dr. McArthur's return, the patient being extremely ill, he saw her, and found a tender area, with an enlargement in the neighborhood of Reidel's lobe of the liver. Considered the condition one of hepatic abscess with burrowing through the diaphragm and expectoration. He urged operative interference. The husband refused to have any operation performed until she had become extremely run down and had a temperature varying from 103° to 106° F. for three or four weeks. Then, at his urgent solicitation, the patient was brought to the hospital. He made an incision over this area, and found an abscess which had perforated the posterior sheath of the rectus muscle, in which were then to be seen for the first time the typical granules, and the nature of the case became clear. The patient lingered along for about two weeks, finally dying. A careful post-mortem examination was made by Dr. Hektoen, and a very thorough report of the case was made. In the sputum there was always to be found the typical leptothrix-like threads, but never any suspicion was had of granules. In the abscess opened there were typical granules to be found, and from them cultures were made which proved typically characteristic, so that here was a person in the habit of chewing straw, grain, and hay, who had disease of the jaw, who had a hypertrophic actinomycotic infection, which often is indistinguishable from tuberculosis, who recovered from that, and later developed abscesses, with perforation of the diaphragm. Post-mortem examination showed multiple stomach abscesses burrowing into the diaphragm, and miliary abscesses along the bronchi.

In regard to these club rays, he learned from the paper which Dr. Bevan referred to, namely, that by Dr. Hektoen, and by personal conversation, that the ray was considered now an involution form of organism, not really the typical or characteristic organism in itself.

He was constrained to urge that cases be not considered cured, although healing has taken place, and they have been presented to a medical society. He once presented a case of actinomycosis of the breast and chest wall to the Chicago Medical Society as cured. This case required extensive resection. Three or four weeks after he presented it new fistulæ formed; the patient lingered so long in the hospital that finally the hospital authorities felt unable to keep her there longer. All of the recognized treatments were tried; the patient gained in weight, but the fistulæ persisted. After leaving the hospital and having been out of it for six months or more, he was called to her bedside in her last illness, finding this very peculiar and unusual condition, namely, that she had a pyocyaneus pyæmia. The palms of the hands and soles of her feet had multiple, round, small, French-pea-sized abscesses, of a blue-green color, that made it to him extremely difficult to decide what she had. Having a bistoury with him, and these tumors seemed to fluctuate, he took some of the material, recognized that he had abscesses containing Bacillus pyocyaneus and demonstrated it. The majority of these abscesses showed upon the soles of the feet and on the palms of the hands; it was on account of these that he was called to see her.

Encouragement from medicine and the use of the X-ray, or from anything at present known, was not to be relied on as curative. He thought the impression should not go forth from the Society that the cases presented by Dr. Bevan were cured. One patient of Dr. Bevan's, as he understood it, might have had pulmonary invasion, but this was not demonstrated, although under the iodide of potash and local treatment the actinomycosis of the neck disappeared. Furthermore, he did not understand that the other cases were reported as cured, and certainly the patients presented were not cured.

PERFORATING GUNSHOT WOUND OF ABDOMEN WITH MULTIPLE INTESTINAL PERFORATIONS; OPERATION; RECOVERY.

DR. E. J. SENN reported the case of a man, aged twenty-four years, street-car conductor, who, during an altercation with a negro, was shot in the abdomen with a .38-caliber revolver. The conductor was standing on the rear platform while his adversary stood on the ground six feet away. The shooting took place at 6.30 P.M., March 18, 1904. The patient had partaken of a hearty dinner at twelve o'clock. Shortly before the accident he had eaten two apples. The wounded man was brought to the Presbyterian Hospital immediately. Dr. Senn saw him first at 7.30 P.M., one hour after the accident. His appearance was bad,—blanched face, anxious expression, pulse quick and thready, and respirations fast and shallow. Examination revealed a large bullet wound located about one inch above McBurney's point. The abdomen was distended with blood, and there was considerable bleeding from the wound. There was dulness in the flanks and some absence of liver dulness. Catheterization yielded several ounces of clear urine.

Immediate operation was decided upon; ether anæsthesia; median incision. Upon opening the peritoneum there was a gush of dark blood and the escape of gas. Large compresses were packed into the abdominal cavity, and the first loop of intestine which presented itself was seized, which proved to be the lower portion of the jejunum. This was given to an assistant, and a search for perforations was made. The intestine was traced in a proximal direction. Four perforations were found and sutured with two rows of stitches, the first through all the coats, and the second with Lembert. Two rents in the mesentery were next closed. In the upper portion of the jejunum the intestine was so badly injured, as well as the mesentery, that resection was necessary. A fine cambric needle with fine silk was used in the circular enterorrhaphy, as well as in the repair of all perforations. Beginning at the mesenteric border, a row of continuous Lembert through-and-through sutures was inserted, and then with the needle armed with the same suture a row of Lembert sutures was introduced. The intestine was next followed to the pylorus. The stomach was slightly distended and intact. Hæmorrhage continued from the left lumbar region. At a point about four inches below the left iliac crest there was a rent in the parietal peritoneum. Examination showed the bullet lying in the soft tissues external to the ilium, having punctured that structure. The left kidney was palpated and found intact. Examination was now continued in a distal direction from the fixed point first held by the assistant, and two perforations were discovered in the ileum and three in the ascending colon near the hepatic flexure. As the patient's condition was now critical, the latter were closed with one row of sutures and the neighboring omentum attached over the line of suture with a few stitches. If the patient's condition had permitted, he would have resected the colon, as the damage to the intestine was extreme. One more perforation in the cæcum was closed. In this locality some fæcal matter as well as several kernels of sweet corn were found in the abdominal cavity. The abdomen was now carefully cleansed by dry sponging, particular care being taken to raise the intestines out of the pelvis in order to remove all blood-clots low down in that cavity. Two large gauze drains were inserted, one to the lowest portion of the pelvis, the other towards the left iliac fossa, where there was considerable oozing. The bullet wound was disinfected and sutured. The wound closed. Patient returned to bed. Pulse, 140; temperature, 98.6° F.; respirations, 26.

During the following two days, strychnine, gr. $^1/_{30}$; salt solution, containing one ounce of whiskey, was administered every four hours. Bowels moved on the second day with a simple enema. On March 20, 21, and 22, the patient had constant hiccough and vomited fæcal matter. The strychnine was reduced to gr. $^1/_{60}$. Enemata of molasses and milk, one pint of each, resulted in good bowel movements, and the patient soon passed out of danger.

Dr. Senn showed skiagraphs of this case, one of them showing the location of the bullet.

In these cases he believed in using fine silk as suture material, although he was aware that a great many surgeons at the present time preferred catgut. He thought catgut had its place in surgical work, but when it came to intestinal suturing, the use of silk was much more reliable. He also preferred a cambric needle, although the surgeons at the Presbyterian Hospital used a curved surgical needle for intestinal suturing. In introducing the Czerny-Lembert suture, the cambric needle facilitated it to a very large degree.

He also called attention to the use of the omentum in grafting. He was particularly interested in this line of work, having made experiments on dogs, and having reported them to the Society at a previous meeting. In making experiments on animals death resulted in each case; but at that time he reported a case of appendicitis, with fistulous opening, in which the defect was closed with omentum. In this instance he was compelled to use this method, because the patient was in such a bad condition that surgical work had to be done expeditiously. He made use of one row of through-and-through sutures. He put one or two stitches through the omentum, covering the first row of stitches. He did not expect the patient to recover, thinking that later on there would be perforative peritonitis. In doing enterorrhaphy, he resorted to through-and-through stitches, and then using the same needle armed with the same thread he made a row of Lembert sutures. This enterorrhaphy was done quickly with the use of cambric needle and silk, and he said he could do an ordinary enterorrhaphy as quickly as one could make an anastomosis with the Murphy button. However, in using the button one might save a minute or two of time.

In regard to drainage, he believed that all cases in which there was perforative peritonitis should be drained. He urged that particular attention be given to thorough cleanliness of the abdominal cavity, but he did not believe in free irrigation by salt solution, as this solution had a tendency to disseminate any material which might remain in the abdominal cavity, and thereby a good deal of harm might be done.

A large piece of gauze was inserted well down in the pelvic cavity, and another away over to the opposite side.

In cases of injury to the intestine, the surgeon should be very systematic in his search for perforations. Unless one was methodical, he was very apt to overlook some perforations.

He emphasized the form of enema that was used in this case. This enema was a combination of molasses and milk, one pint of each. In many postoperative cases where he had been unsuccessful in using enemata of turpentine or Epsom salts, he had been successful with molasses and milk. It was agreeable and soothing to the patient. He hoped the members would try this whenever they had inveterate postoperative cases. In one case of intestinal obstruction upon which he was prepared to operate, he succeeded in removing the obstruction with molasses and milk.